

## Adjusting shader settings for Civ4 units with NifViewer

In order to add team color or to make a non FX unit display gloss and glow maps.

### 0. Introduction

This is a tutorial on how to add team color to a custom unit that does not yet have it. This is rather easy and will work with all units, 'living' as well as mechanical. In the end i will also give some notes on a possibility to add a FX shader to the unit. This will in general achieve better results, and will in addition allow you to add gloss and glow maps to the unit, but might not work with some custom units, since it does require the model to have a skin modifier applied to it.

If you want more information on the other possibilities of the NifViewer, you should read Rabbit, White's tutorials at Civ Fanatics Forums: <http://forums.civfanatics.com/showthread.php?t=163585> [1].

You will notice that i am not a native English speaker. I tried to make clear what i mean, and i hope that for the most of the document i did. I apologize for any spelling mistakes and syntax errors.

### 1. What is needed?

You will need the NifViewer. It comes as part of the 3DsMax plug-in but does need Max to work. After extracting the plug-in in a folder of your choice, you will find the SceneViewer.exe there. I am not sure which of the other files in the archive the program needs. <http://forums.civfanatics.com/showthread.php?t=159481>

While this step is not covered in detail, you will also need to edit the .dds texture files, i.e. the alpha channel. The Nvidia DDS Plug-in for PS is here: [http://developer.nvidia.com/object/photoshop\\_dds\\_plugins.html](http://developer.nvidia.com/object/photoshop_dds_plugins.html). A good free alternative to Photoshop is the GIMP - <http://www.gimp.org/>. In the plug-in registry on gimp.org you can also find the DDS plugins.

And of course, you need a unit you want to add team colour to. You should have no trouble following the steps with any unit you choose. For this demonstration i made a 'custom' version of the Jetfighter, exporting it in a way common to many custom units. The nif is included with the tutorial for completeness. The original jet fighter texture of course already does have a proper alpha channel, so you would not need to edit it. You probaly will not be that lucky with other units you want to add team colour to.

### 2. Preparations

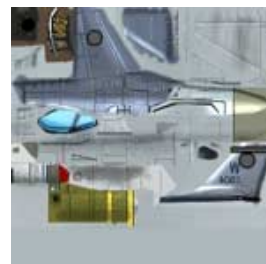
Download a unit and extract it to a folder of your choice. Copy *BoundShape.nif* from where you installed the NifViewer to the same folder your unit is in. Also put *teamcolor.bmp* in the same folder as your unit is. It comes from CivIV shared art folder. I included both with the tutorials archive, to save you the time unpacking and searching.

Now open the unit in the NifViewer and take a look. Decide where you would like to see team colour. I choose the marks (that were team colour in the original jet fighter anyway) and the wingtips. Now it is time to prepare the texture. Consider doing this in two steps: a very fast, slappy version first, to get things working, then after it is applied to the model and you can actually see the results, it will be easier to refine the final texture.

The team colour will be applied, where the texture is 'transparent', so we need to edit the alpha channel of the map. Black areas in the alpha channel will make the texture transparent and the team colour visible. You can also use dark grey for partial team colour, keeping some of the textures structure visible.

Your texture/alpha channel should look like this now, with black spots in the alpha map corresponding to team coloured areas. You not need to change nothing in the colour layer of your texture.

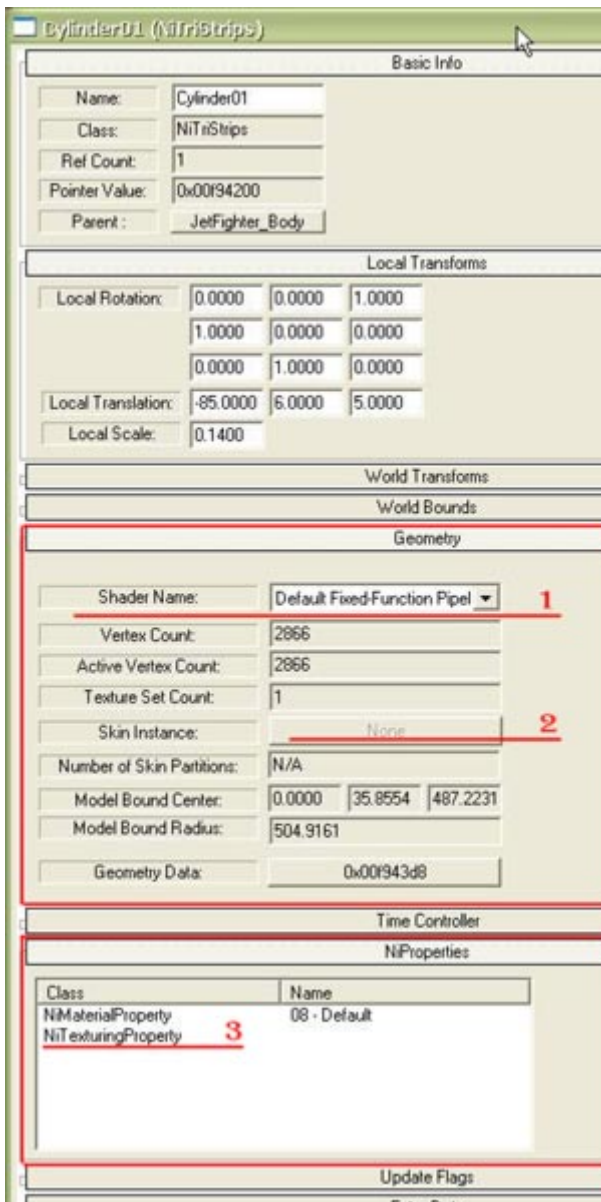
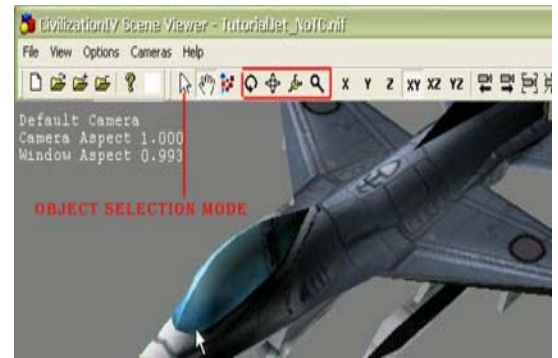
Save it as a .DDS file using the "DXT3 ARGB (Explicit Alpha)" settings. You should as always rather save the texture with a new name, than to overwrite the file.



### 3. Adjusting the Texture and Shader Settings with the NifViewer

Now open your unit in the NifViewer again. You will see no change yet, even if you replaced the original texture file. This is because the unit's material shader is not set to display team color.

You can use the buttons marked here in red to rotate and zoom the camera to get a good view of your unit. When you are ready, click the "Object Selection Mode" button. Select the airplane, then right click on it and choose "Properties". A new window will come up displaying different properties of the mesh. Note that some units will have multiple objects, so make sure, you selected the right one.



You can read more about the possibilities of the NifViewer in Rabbit, White's tutorial [1]. For the task at hand only the "Geometry" and the "NiProperties" rollouts are of interest. Some rollouts might be collapsed when the window first opens. You can expand them by clicking on the rollouts title bar.

In the geometry rollout take a look at the selected shader **1**. For many of the custom units it will be "Default Fixed-Function Pipeline", which is the default non FX shader of CivIV and will do fine for our purposes. Take a look at the "Skin Instance" field **2**. While we can not edit this field in the NifViewer it is important, because it will tell us, what possibilities we have with this unit.

It is grayed out and says "None". This means, that the mesh does not have a skin applied to it, which in turn means, that we can not use any advanced FX shader for this unit.

If the Skin Instance field is displaying a long hexadecimal number (something like 0x00f8b316) instead of "None", the unit has a skin applied to it. For this unit you could use a more advanced FX shader, if you wish.

You can however still use the easier Default Shader.

*Important Note: If the "Shader Name" dropdown box is empty or only has the default shader, you need to close the NifViewer, open it again empty (not by double clicking on a nif file) and then load the nif file in the already running program. In general for editing units this way seems to be safer, since when directly opening a nif via double click some kind of working folder mix-up seems to occur.*

In the NiProperties rollout you see the additional properties of the mesh. In some cases there might be more fields, than the two displayed here. What we need is NiTexturingProperty **3**. Double click it, to open a new window, where you can add, remove or reassign texture maps.

You can try different settings a bit, if you want. Note however, that you need to save and reload your unit, to see the actual effect of the most changes. After you tried around, I recommend reloading the original unit before you proceed, to make sure, none of your changes stick somewhere.

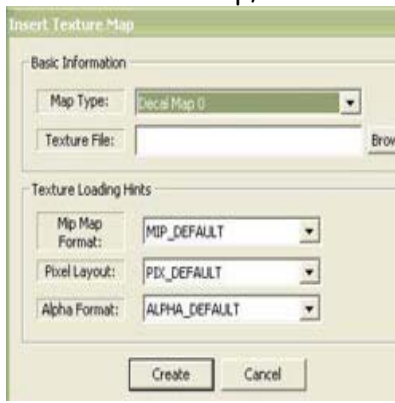
### 3.1 Reassigning Textures

Expand the "NiProperties" and double click "NiTexturingProperty" to open the textures window. You see that for now the texture map is assigned as "Base Map". We need to move it.

*Note that while performing the steps described below, the model in the view port might change color or otherwise start looking strange. Don't bother about this now. You will need to finish the procedure, save and then reload the unit, to see the real effect of your changes.*

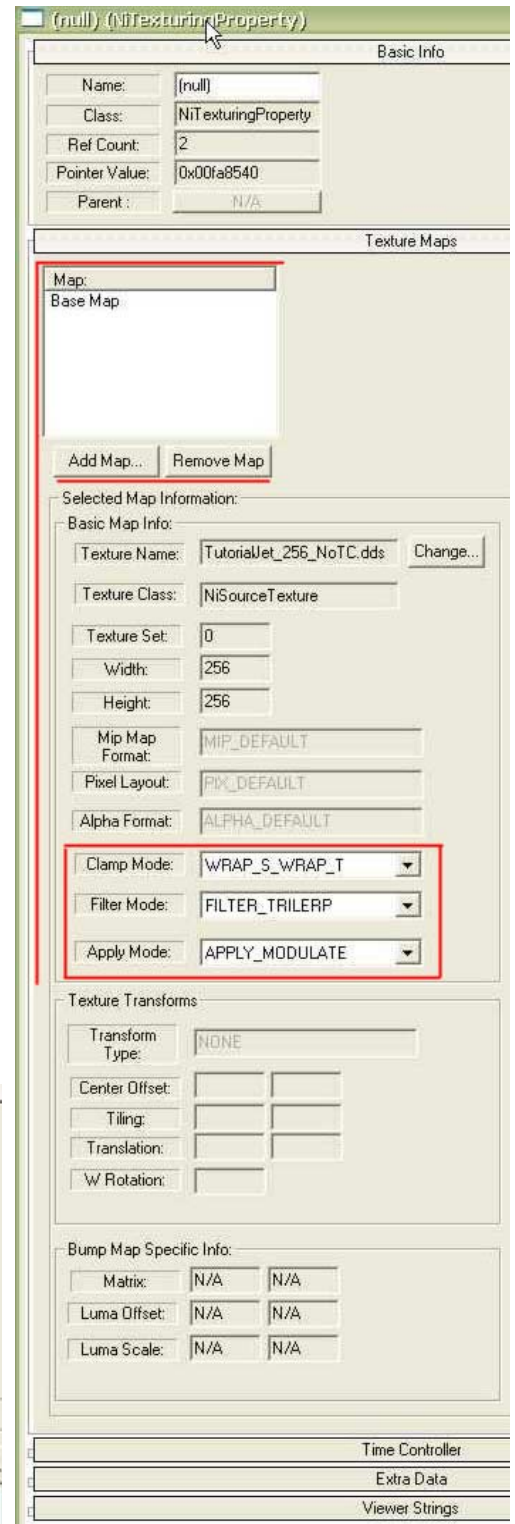
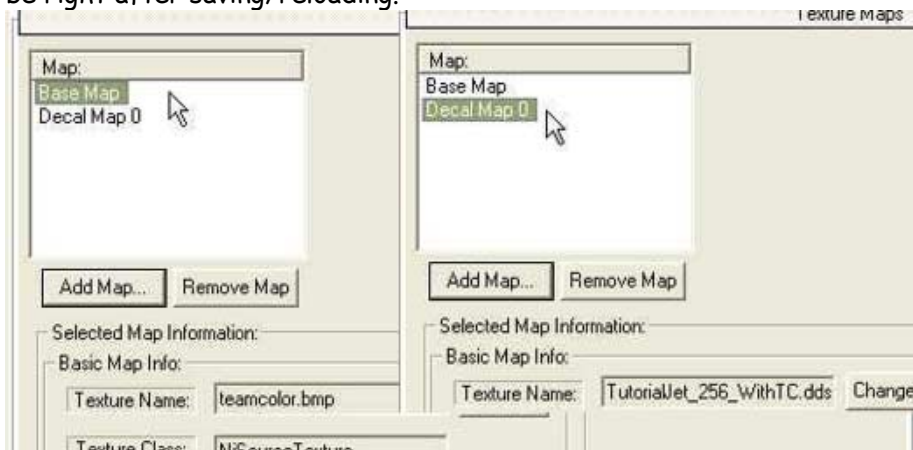
Note the "Clamp, Filter and Apply Mode" settings. They should be as displayed here for any map you add, so check and adjust them after adding or editing maps.

Select the Base Map, and click "Remove Map". Now click "Add Map..." Select "Decal Map 0" from the "Map Type:" dropdown box and assign the texture file. Leave the other settings as they are and click "Create" to add the map.



Now add a new "Base Map" using "teamcolor.bmp" as texture file. To be able to see/select the bmp file you need to change file type to "All Files"

You should end up with two maps looking as in the picture below. Don't worry about the dialog displaying the wrong width and height. This will be right after saving/reloading.



When you are done, close the textures window. Change Shader Name to "Default Fixed Function Pipeline", if it is set to something else. Save the unit with a new name and load the newly created nif file in the NifViewer.



Your unit will display team color now. When you can see the results, you might want to revisit the texture, to improve the overall result.

The NifViewer will sometimes use different color to display team colored areas. It is a clean green for FX units, blue or pink for non FX, or the red color taken from teamcolor.bmp, if the file is in the folder, which is the case now.

The unit is ready to appear team coloured in the game now. You not need to keep/deliver teamcolor.bmp and BoundShape.nif with your unit - those are only needed while editing.



## Appendix. Advanced Shader Notes

What follows are some notes on using different shaders for units. This might improve the results and in addition open other possibilities than just team color. However, some shaders might not work well or not work at all with some units. The procedure of assigning maps and shaders is the same as described above, so i will skip the pictures and only list the prerequisites for each shader, its possibilities and the maps needed.

Generally, when changing shaders, it seems to be safer to reassign the texture maps first, before assigning a new shader. Also when choosing a new shader, the unit might show strange behavior - for example a tanks turret might disappear. This might be an indicator of some kind of problem, but in most cases nothing is wrong.

*You always need to save and reload your unit to see the real result.*

### TCiv4MechNonShader

This is the only other shader that will work with meshes that do not have a skin assigned to them. This Shader can display damage textures - if the unit has any. From what i know you can not add damage states without re-exporting the unit from 3DsMax. The payoff as compared to the default shader is that the textures will look very flat. So unless you have very good textures with painted shadows, you will be better off with the Default shader.

For the TCiv4MechNonShader main texture must be *"Detail Map"*. The damage texture should go to the *"Decal 0 Map"* slot.\*

### FX Shaders

There is also a selection of FX shaders. Those are capable of using gloss and glow maps in addition to team color and can display damage textures on mechanical units. To use any of them, your mesh needs to have a skin modifier assigned to it (*"Skin Instance"* field not showing *"None"*) otherwise the shader will not only not work, but might also cause undesired side effects. If your unit is skinned however, you could use one of those instead of the default shader to add Gloss and Glow maps to greatly improve the look of your unit.

### TCiv4MechShader

FX for non-metal mechanical units (i.e. wood ships) with damage states and team color\*\* Main Texture as Detail Map  
Damage Texture\* as Decal Map 0

### TCiv4MechShaderGloss

FX for metallic mechanical units with damage states and team color\*\* Main Texture as Detail Map  
Damage Texture\* as Decal Map 0  
Gloss Map & Glow Map (must use)

### TCiv4Skinning

FX for non mechanical units with team color\*\* Main Texture as Base Map

### TCiv4SkinningGloss

FX for non mechanical units with lots of metal and team color\*\* Main Texture as Base Map  
Gloss & Glow Maps (must use)

\* If you not have a damage texture, you shall assign the main texture map to the decal 0 slot. Leaving decal 0 empty might cause ugly glitches in the game.

\*\* While this tutorial is about adding team color, i should mention, that you also can easily disable team color, just by making the alpha channel of your texture all white.

*Also note that while I am always talking of units, the shader is actually assigned to a mesh. So you could use different shaders on a unit consisting of multiple objects. If in doubt, you can always load a stock unit in the NifViewer to look which settings are used there. There are also a couple of other unit shaders which I did not try yet.*

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We are through with this one. I hope it was somewhat helpful. If you find something unclear, wrong or missing, please give me a note (lord\_refar@yahoo.de)

Happy Modding

30.09.2007, Refar